



Europäisches Patentamt
European Patent Office
Office européen des brevets



⑪ Publication number : **0 480 703 A3**

⑫

EUROPEAN PATENT APPLICATION

⑬ Application number : **91309278.9**

⑮ Int. Cl.⁵ : **H01L 21/48**

⑭ Date of filing : **09.10.91**

⑯ Priority : **12.10.90 US 597255**

⑰ Date of publication of application :
15.04.92 Bulletin 92/16

⑱ Designated Contracting States :
DE FR GB IT

⑲ Date of deferred publication of search report :
03.06.92 Bulletin 92/23

⑳ Applicant : **GENERAL ELECTRIC COMPANY**
1 River Road
Schenectady, NY 12345 (US)

㉑ Inventor : **Wojnarowski, Robert John**
1023 Hatlee Road
Ballston Lake, New York 12019 (US)
Inventor : **Eichelberger, Charles William**
1256 Waverly Place
Schenectady, New York 12308 (US)

㉒ Representative : **Pratt, Richard Wilson et al**
London Patent Operation G.E. TECHNICAL
SERVICES CO. INC. Burdett House 15/16
Buckingham Street
London WC2N 6DU (GB)

㉓ Producing metal patterns on a substrate.

㉔ Conductive patterns may be formed on the surface of thermally inefficient substrates by depositing a uniform layer of metal thereover whose upper surface is substantially UV absorbing followed by laser ablation of the deposited metal to leave the deposited metal only in the desired metal pattern. Thermally efficient substrates (10) may be rendered thermally inefficient by the deposition of a thermally inefficient material thereon. That thermally inefficient material may be either electrically insulating or a metal. A two layer metallization comprising a first, thermally inefficient reactive metal (22) and a second UV absorbing metal (24) is preferred. When disposed on a thermally inefficient substrate, this two layer metallization ablates reactively as the two layers burn off together. This laser ablation process substantially roughens the surface of polymer dielectrics and may be used to repair open traces in printed circuit structures.



~ 10

FIG. 1

EP 0 480 703 A3

THE **LE** **ST** **AV** **AIL** **BL** **C** **O** **P** **Y**

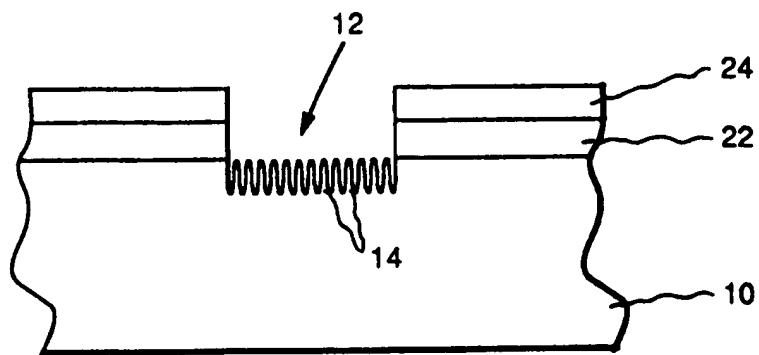


FIG.5

BEST AVAILABLE COPY



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 30 9278

DOCUMENTS CONSIDERED TO BE RELEVANT						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CLS)			
A	US-A-4 826 785 (INMOS) * abstract * * column 3, line 44 - column 5, line 11 * ---	1	H01L21/48			
A	EDN ELECTRICAL DESIGN NEWS. vol. 17, no. 13, 1 July 1972, NEWTON, MASSACHUSETTS US page 14; 'Circuits Formed on Ceramic Substrates with Laser "Machining" Process' * the whole document * ---	1,5,7,16				
A	US-A-4 786 358 (SEMICONDUCTOR ENERGY LABORATORY) * the whole document * ---	7,15,16				
A	D. BAUERLE;"Chemical Processing with LASERs", Springerverlag,1986,ISBN 3-540-17 147-9, pp.162-170 *p169-170,"8.1 Metals"*	8-12				
A	EP-A-0 180 101 (IBM) * abstract * ---	4,14				
A	IBM TECHNICAL DISCLOSURE BULLETIN. vol. 8, no. 12, May 1966, NEW YORK US page 1733; H. L. CASWELL: 'Electroforming Film Patterns for Interconnections' -----		TECHNICAL FIELDS SEARCHED (Int. CLS) H01L			
<p>The present search report has been drawn up for all claims</p> <table border="1"> <tr> <td>Place of search THE HAGUE</td> <td>Date of completion of the search 11 MARCH 1992</td> <td>Examiner PROHASKA G.A.</td> </tr> </table>				Place of search THE HAGUE	Date of completion of the search 11 MARCH 1992	Examiner PROHASKA G.A.
Place of search THE HAGUE	Date of completion of the search 11 MARCH 1992	Examiner PROHASKA G.A.				
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons A : member of the same patent family, corresponding document				